

# GEOMETRY

L. VALLIAPPAN  
39111054  
193111355

1) If each side of a cube is doubled, how many times will its surface area increase.

Length =  $L$

$$S.A \text{ (or)} T.S.A = 6L^2 \Rightarrow \text{Initial}$$

if doubled

$$T.S.A = 6(2L)^2 = 6 \times 4L^2 = 24L^2$$

$$6L^2 = 24L^2$$

$$1:4 \Rightarrow \boxed{4 \text{ times.}}$$

2) Find the height of a cuboid whose base area is  $180 \text{ cm}^2$  and volume is  $900 \text{ cm}^3$

$$\text{volume} = l \times b \times h$$

$$\text{Volume} = 900$$

$$\text{Base Area} = l \times b$$

$$l \times b \times h = 900$$

$$180 \times h = 900$$

$$\boxed{h = 5 \text{ cm}}$$

3) A cuboid is of dimension  $(60 \times 50 \times 30) \text{ cm}$ . How many small cubes with side of  $6 \text{ cm}$  can be placed inside given cuboid

$$\text{volume of cuboid} = l \times b \times h = 60 \times 50 \times 30 = 90,000$$

$$\text{volume of cube} = (6)^3 = 216$$

$$\text{No. of cubes needed} = \frac{90,000}{216} = 416.66$$

$$\approx \boxed{416 \text{ cubes (complete)}}$$

4) Find the height of the cylinder whose volume is  $1.54 \text{ m}^3$  and diameter of base is  $140 \text{ cm}$ .

$$d = 140 \text{ cm}$$

$$r = 70 \text{ cm} \Rightarrow \frac{70}{100} = 0.7 \text{ m}$$

$$\text{Volume of cylinder} = 1.54 \text{ m}^3$$

$$\text{Volume of cylinder} = \pi r^2 h$$

$$1.54 = \frac{22}{7} \times 0.7 \times 0.7 \times h$$

$$1.54 = 2.2 \times 0.7 \times h$$

$$1.54 = 1.54h$$

$$\boxed{h = 1 \text{ m}} \text{ (or)} \boxed{h = 100 \text{ cm}}$$

5.) Find the area of trapezium where length of parallel sides are 15 cm and 25 cm and the third side measures 12 cm.

L. VALLIAPPAN  
39111054  
198111355

$$= \frac{1}{2} \times (a+b) \times h$$

$$= \frac{1}{2} \times (15+25) \times 12$$

$$= \frac{1}{2} (40) \times 12$$

$$= 20 \times 12$$

$$= \boxed{240 \text{ cm}^2}$$

6.) Find the area of rhombus whose diagonals are 8 cm and 10 cm

$$= \frac{1}{2} \times 8 \times 10$$

$$= \boxed{40 \text{ cm}^2}$$

7.) If each side of a cube is doubled, how many times will its volume increase?

$$\text{Volume of cube} = l^3 \rightarrow \text{Initial}$$

$$\text{New volume of cube} = (2l)^3 = 8l^3 \rightarrow \text{Final}$$

$$l^3 : 8l^3$$

$$1 : 8$$

$$\boxed{8 \text{ times}}$$

8.) A rectangular sheet of paper is having measures 11 cm × 4 cm. It is folded without overlapping to make a cylinder of height 4 cm.  
Find volume of cylinder

$$= \pi r^2 h \rightarrow \text{volume of cylinder}$$

$$\text{Circumference of base of cylinder (base) = length of rectangle}$$

$$2\pi r = 11$$

$$2 \times \frac{22}{7} \times r = 11$$

$$r = \frac{77}{44}$$

$$r = \frac{7}{4} \text{ cm}$$

$$\text{Volume} = \frac{22}{7} \times \frac{7}{4} \times \frac{7}{4} \times 4 = \frac{77}{2} \text{ cm}^3 \text{ (or) } 38.5 \text{ cm}^3$$



LEVEL - 2

L. VALLIAPPAN

39111054

193111355

- 1) A godown in the form of a cuboid measures  $(60 \times 40 \times 30)$  m. How many cuboidal boxes can be stored in it if the volume of the box is  $0.8 \text{ m}^3$

$$\frac{\text{Volume of godown}}{\text{Volume of box}} = \frac{60 \times 40 \times 30}{0.8} = \frac{72000 \text{ m}^3}{0.8 \text{ m}^3}$$

$$= 90,000$$

- 2) A rectangular paper of width 14 cm is rolled along with its width and a cylinder of radius 20 cm is formed. Find volume of cylinder.

$$\text{Volume} = \pi r^2 h$$

$$= \frac{22}{7} \times 20 \times 20 \times 14$$

$$= 22 \times 400 \times 8$$

$$\text{Volume} = 17600 \text{ cm}^3$$

- 3) A rectangular piece of paper is having measures  $11 \text{ cm} \times 4 \text{ cm}$ . It is folded without overlapping to make a cylinder of height 4 cm. Find the volume of the cylinder.

$$\text{Volume} = \pi r^2 h$$

$$\text{Circumference of cylinder base} = \text{length of rectangle}$$

$$2\pi r = 11$$

$$2 \times \frac{22}{7} \times r = 11$$

$$r = \frac{77}{44}$$

$$r = 7/4 \text{ cm}$$

$$\text{Volume} = \frac{22}{7} \times \frac{7}{4} \times \frac{7}{4} \times 4 = \frac{77}{2} \text{ cm}^3 \text{ (or)} = 38.5 \text{ cm}^3$$

4) A square and a rectangle have same perimeter. If the side of the square is 60 cm and length of a rectangle is 80 m, then whose area is more and how much.

L. VALLIAPPAN  
3911054  
19/11/2022

$$P(\text{square}) = 4a = 4 \times 60 = 240$$

$$P(\text{rectangle}) = 2l + 2b = 2(l + b) = 2(80 + b) = 160 + 2b$$

$$240 = 160 + 2b$$

$$80 = 2b$$

$$b = 40$$

$$\text{Area of square } 60 \times 60 = 3600 \text{ m}^2$$

$$\text{Area of rectangle} = 80 \times 40 = 3200 \text{ m}^2$$

$\therefore$  Square area is more by 400 m<sup>2</sup>

5) The area of a quadrilateral shaped field is 252 m<sup>2</sup>. The perpendiculars dropped on it from the opposite corners on a diagonal are 8 m and 13 m. Find length of the diagonal.

$$\begin{aligned} \text{Area of quad (ABCD)} &= \text{Area of } (\triangle ACD) + \text{Area of } (\triangle ABC) \\ &= \frac{1}{2} \times DE \times AC + \frac{1}{2} \times BF \times AC \end{aligned}$$

$$252 = \frac{1}{2} \times AC (DE + BF)$$

$$504 = AC \times 21$$

$$AC = 24 \text{ m}$$

